

CLAIMS: Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is as follows:

1. A method for enhancing the phosphorylation potential within the cells of a mammal in order to prevent and/or ameliorate the deterioration or promote the restoration and preservation of normal cell functions comprising administering to a mammal in need thereof a pharmaceutical composition containing as an active ingredient thereof a salt of an alpha-ketocarboxylic acid having the formula  $R-C(=O)(CO)OM$  wherein R is alkyl of 1 to 12 carbon atoms; substituted alkyl of 1 to 12 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, alkenyl of 2 to 6 carbon atoms; alkynyl of 3 to 6 carbon atoms; benzyl; substituted benzyl (wherein the substituent is methyl, phenyl on the alpha carbon atom or the substituent is methyl, dimethyl, halo, dihalo, or ethoxy on the phenyl ring); adamantyl; phenyl; naphthyl; substituted phenyl or substituted naphthyl (wherein the ring is mono-, di-, or trisubstituted and the substituents are alkyl of 1 to 4 carbon atoms, halo, alkoxy of 1 to 4 carbon atoms, phenoxy, trihalomethyl, dimethylamino, diethylamino, and M is a cation alone or in combination with nicotinamide. and creatine
2. The method in accordance with Claim 1 wherein said cation is an alkali or alkaline earth metal.
3. The method in accordance with Claim 2 wherein the alkali metal is sodium.
4. The method in accordance with Claim 3 wherein R is an alkyl group containing 1

to 12 carbon atoms.

5. The method in accordance with Claim 4 wherein the alkyl group is methyl.
  
7. The method of Claim 1 wherein the patient is suffering from diseases and/or ailments from the group consisting of: viral infections; bacterial infections; fungal infections; parasitic infections and more specific diseases and/or ailments; such as as, AIDS; alzheimer's dementia; angiogenesis diseases; aphthous ulcers in AIDS patients; asthma; atopic dermatitis; psoriasis; basal cell carcinoma; benign prostatic hypertrophy; blood substitute; blood substitute in surgery patients; blood substitute in trauma patients; breast cancer; cutaneous & metastatic; cachexia in AIDS; campylobacter infection; cancer; pneumonia; sexually transmitted diseases (STDs) ; cancer; viral diseases; candida albicans in AIDS and cancer; candidiasis in HIV infection; pain in cancer; pancreatic cancer; parkinson's disease; peritumoral brain edema; postoperative adhesions (prevent) ; proliferative diseases; prostate cancer, ragweed allergy; renal disease; restenosis; rheumatoid arthritis; allergies; rotavirus; infection scalp psoriasis; septic shock; small-cell lung cancer, solid tumors; stroke; thrombosis; type I diabetes; type I diabetes w/ kidney transplants; type II diabetes; visceral leishmaniasis; malaria; periodontal or gum disease; cardiac rhythm disorders; central nervous system diseases; central nervous system disorders; cervical dystonia (spasmodic torticollis) ; choroidal neovascularization; chronic hepatitis A, B and C; colitis associated with antibiotics; colorectal cancer; coronary artery thrombosis; cryptosporidiosis in AIDS; cryptosporidium parvum diarrhea in AIDS; cystic fibrosis;

cytomegalovirus disease; depression; social phobias; panic disorder, diabetic complications; diabetic eye disease; diarrhea associated with antibiotics; erectile dysfunction; genital herpes; graft-vs host disease in transplant patients; growth hormone neutralization after cardiac bypass; hepatocellular carcinoma; HIV; HIV infection; Huntington's disease; CNS diseases; hypercholesterolemia; hypertension; inflammation; inflammation and angiogenesis; inflammation in cardiopulmonary bypass; influenza; migraine head ache; interstitial cystitis; contagiosum in AIDS; multiple sclerosis; neoplastic meningitis from solid tumors; non-small cell lung cancer; organ transplant rejection; osteoarthritis; rheumatoid arthritis; osteoporosis; drug addiction; shock; ovarian cancer; Amebiasis; Babesiasis; Chagas' disease (*Trypanosoma cruzi*) Cryptosporidiosis; Cysticercosis; Fascioliasis; Filariasis; Echinococcosis; Giardiasis; Leishmaniasis; Malaria; Paragonimiasis; Pneumocystosis; Schistosomiasis; Strongylodiasis; Toxocariasis; Toxoplasmosis; Trichinellosis; Trichomoniasis; yeast infection; stomach ulcers, sickle cell disease, obesity, burn wounds, skin cancer, skin burn, pulmonary disease, alzheimer's disease, heart disease, juvenile rheumatoid arthritis, scleroderma, bad breath, body odor, asthma, pulmonary diseases, enteric diseases, reflux, temporomandibular joint dysfunction, gallstones, cerebral palsy, prostate cancer, motion sickness, kidney stones, Lou Gehrig disease, infertility, erectile dysfunction, food poisoning, and pain, and combinations thereof.

8. A method for enhancing the phosphorylation potential within the cells of a mammal in order to prevent and/or ameliorate the deterioration or promote the restoration and

preservation of normal cell functions comprising perfusion of a mammalian organ in need thereof with pharmaceutical composition containing as an active ingredient thereof a salt of an alpha-ketocarboxylic acid having the formula  $R-C(=O)(CO)OM$  wherein R is alkyl of 1 to 12 carbon atoms; substituted alkyl of 1 to 12 carbon atoms, cyloalkyl of 3 to 10 carbon atoms, alkenyl of 2 to 6 carbon atoms; alkynyl of 3 to 6 carbon atoms; benzyl; substituted benzyl (wherein the substituent is methyl, phenyl on the alpha carbon atom or the substituent is methyl, dimethyl, halo, dihalo, or ethoxy on the phenyl ring); adamantyl; phenyl; naphthyl; substituted phenyl or substituted naphthyl (wherein the ring is mono-, di-, or trisubstituted and the substituents are alkyl of 1 to 4 carbon atoms, halo, alkoxy of 1 to 4 carbon atoms, phenoxy, trihalomethyl, dimethylamino, diethylamino, and M is a cation alone or in combination with nicotinamide, creatine and/or an amino acid.

9. The method in accordance with Claim 8 wherein said mammalian organ is selected from the group comprising heart, liver, kidney, brain, spleen vessels, arteries, endothelium, pancreas and glands.

10. A method for enhancing the phosphorylation potential within the cells of a mammal in order to prevent and/or ameliorate the deterioration or promote the restoration and preservation of normal cell functions thereby enhancing physical endurance or refreshment comprising administering to a mammal in need thereof a food product containing a pharmaceutical composition having as an active ingredient thereof a salt of an alpha-ketocarboxylic acid having the formula  $R-C(=O)(CO)OM$  wherein R is alkyl of 1 to 12 carbon atoms; substituted alkyl of 1 to 12 carbon atoms, cyloalkyl of 3 to 10 carbon

atoms, alkenyl of 2 to 6 carbon atoms; alkynyl of 3 to 6 carbon atoms; benzyl; substituted benzyl (wherein the substituent is methyl, phenyl on the alpha carbon atom or the substituent is methyl, dimethyl, halo, dihalo, or ethoxy on the phenyl ring); adamantyl; phenyl; naphthyl; substituted phenyl or substituted naphthyl (wherein the ring is mono-, di-, or trisubstituted and the substituents are alkyl of 1 to 4 carbon atoms, halo, alkoxy of 1 to 4 carbon atoms, phenoxy, trihalomethyl, dimethylamino, diethylamino, and M is a cation alone or in combination with nicotinamide, creatine and/or an amino acid).

11. The method in accordance with Claim 10 wherein said food product is a beverage drink.

12. The method in accordance with Claim 11 wherein said food product comprises rice, meat, bread, pasta, fish, fruit, poultry, vegetables and a confectionery food.

13. The method in accordance with Claim 12 wherein said food product is selected from the group comprising candies and pastries.

14. A composition of matter for enhancing the phosphorylation potential within the cells of a mammal or a biological system in order to prevent and/or ameliorate the deterioration or promote the restoration and preservation of normal cell functions comprising a therapeutically effective amount of a salt of an alpha-ketocarboxylic acid having the formula  $R-C(=O)(CO)OM$  wherein R is alkyl of 1 to 12 carbon atoms; substituted alkyl of 1 to 12 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, alkenyl of 2 to 6 carbon atoms; alkynyl of 3 to 6 carbon atoms; benzyl; substituted benzyl (wherein the substituent is

methyl, phenyl on the alpha carbon atom or the substituent is methyl, dimethyl, halo, dihalo, or ethoxy on the phenyl ring); adamantyl; phenyl; naphthyl; substituted phenyl or substituted naphthyl (wherein the ring is mono-, di-, or trisubstituted and the substituents are alkyl of 1 to 4 carbon atoms, halo, alkoxy of 1 to 4 carbon atoms, phenoxy, trihalomethyl, dimethylamino, diethylamino, and M is a cation alone or in combination with nicotinamide and creatine.

15. A composition according to Claim 14 wherein said salt of an alpha-ketocarboxylic acid is present in combination with nicotinamide, creatine and/or an amino acid.

16. A food product for enhancing the phosphorylation potential within the cells of a mammal in order to prevent and/or ameliorate the deterioration or promote the restoration and preservation of normal cell functions thereby enhancing physical endurance or refreshment comprising a pharmaceutical composition having as an active ingredient thereof a salt of an alpha-ketocarboxylic acid having the formula  $R-C(=O)(CO)OM$  wherein R is alkyl of 1 to 12 carbon atoms; substituted alkyl of 1 to 12 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, alkenyl of 2 to 6 carbon atoms; alkynyl of 3 to 6 carbon atoms; benzyl; substituted benzyl (wherein the substituent is methyl, phenyl on the alpha carbon atom or the substituent is methyl, dimethyl, halo, dihalo, or ethoxy on the phenyl ring); adamantyl; phenyl; naphthyl; substituted phenyl or substituted naphthyl (wherein the ring is mono-, di-, or trisubstituted and the substituents are alkyl of 1 to 4 carbon atoms, halo, alkoxy of 1 to 4 carbon atoms, phenoxy, trihalomethyl, dimethylamino, diethylamino, and M is a cation alone or in combination with

nicotinamide, creatine and/or an aminoacid.

17. The food product in accordance with Claim 16 wherein said food product is a beverage drink.

18. The food product in accordance with Claim 16 wherein said food product comprises meat, bread, pasta, fish, fruit, poultry, vegetables and a confectionery food.

19. The food product in accordance with Claim 16 wherein said food product is selected from the group comprising candies and pastries